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THESIS

COMMANDING OFFICER AND EXECUTIVE OFFICER
ROLE AMBIGUITY AND UNIT PERFORMANCE .

by

Dale Arthur Rauch

December 1982

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The analysis of the relationship of the level of role ambiguity between a CO and XO and its effect on unit performance was prepared using information from a locally developed survey questionnaire and from specific measures of unit effectiveness.

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Commanding Officer and Executive Officer
Role Ambiguity and Unit Performance

by

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Lieutenant Commander, United States Navy
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Submitted in partial fulfillment of the
requirements for the degree of

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from the

NAVAL POSTGRADUATE SCHOOL
December 1982

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TABLE OF CONTENTS

I.	INTRODUCTION-	- - - - -	9
II.	REVIEW OF LITERATURE-	- - - - -	12
	A.	REASONS FOR ROLE AMBIGUITY-	- - - - - 12
		1. Need to Delegate-	- - - - - 12
		2. Formal vs. Informal Chain of Command-	- - - 13
		3. Dual Management -	- - - - - 18
	B.	ROLE CONFLICT AND THE ORGANIZATION-	- - - - - 21
		1. Types of Role Conflict-	- - - - - 21
		2. Applicability to Naval Surface Ships-	- - - 24
		3. Effects of Role Conflict and Role Ambiguity -	- - - - - 25
		4. Effect of Conflict and Ambiguity vs. Organizational Level-	- - - - - 27
III.	METHODOLOGY -	- - - - -	30
	A.	STUDY OVERVIEW-	- - - - - 30
	B.	SAMPLE CHARACTERISTICS-	- - - - - 32
	C.	THE INSTRUMENT-	- - - - - 33
	D.	SURVEY METHOD -	- - - - - 35
		1. Retention Statistics-	- - - - - 36
		2. Naval Force Status Report (NAVFORSTAT) Data-	- - - - - 37
		3. Appearance and Cleanliness-	- - - - - 39
	E.	RESEARCH HYPOTHESES AND STATISTICAL METHOD-	- - - - - 40
IV.	DESCRIPTION OF FINDINGS -	- - - - -	43

A.	DATA SUMMARY - - - - -	-43
B.	DATA ANALYSIS - - - - -	-47
C.	RESULTS OF "t" TEST - - - - -	-54
D.	TASK VS. SOCIAL-EMOTIONAL - - - - -	-56
V.	CONCLUSIONS AND RECOMMENDATIONS - - - - -	-58
A.	CONCLUSIONS - - - - -	-58
B.	RECOMMENDATIONS - - - - -	-60
APPENDIX A.	LEADERSHIP QUESTIONNAIRE - - - - -	-64
APPENDIX B.	RETENTION DATA CONVERSION AND REGROUPING - - - - -	-71
APPENDIX C.	FREQUENCY CHARTS AND HISTOGRAMS- - - - -	-72
LIST OF REFERENCES-	- - - - -	-84
INITIAL DISTRIBUTION LIST	- - - - -	-87

LIST OF TABLES

Table		Page
4-1	TABULATION OF RAW DATA- - - - -	48
4-2	SPEARMAN CORRELATION COEFFICIENTS - - - - -	51
4-3	RESULTS OF "t" TEST - - - - -	55

LIST OF FIGURES

Figure		Page
2-1	FORMAL SHIPBOARD CHAIN OF COMMAND - - - - -	15
2-2	INFORMAL (ACTUAL) SHIPBOARD CHAIN OF COMMAND- - - - -	17

I. INTRODUCTION

Navy Regulation, Article 0701:

The responsibility of the commanding officer for his command is absolute, ... While he may, at his discretion, and when not contrary to law or regulations, delegate authority to his subordinates for the execution of details, such delegations of authority shall in no way relieve the commanding officer of his continued responsibility for the safety, well-being, and efficiency of his entire command. [Cope, 1966, p. 21]

The above quotation, taken from Command at Sea, describes in a few words the unique situation faced by a commanding officer of a naval ship. He is personally held responsible and accountable for lives and well-being of his crew and millions of dollars worth of equipment and yet while the commanding officer is formally responsible for every aspect of his command he must in practice delegate tasks to his subordinates. The delegation of responsibilities for the performance of certain functions can lead to the problems of role ambiguity and role conflict. This role ambiguity and role conflict will be the subject of this paper.

The terms role conflict and role ambiguity are frequently used almost interchangeably in everyday conversation. For purpose of this study it is important to draw a clear distinction between the two terms. This distinction will be made using the following definitions provided by Katz and Kahn:

We define role conflict as the simultaneous occurrence of two or more role expectations such that compliance with one would make compliance with the other more difficult or impossible. [Katz and Kahn, 1978, p. 204]

In its prototypical form, role ambiguity simply means uncertainty about what the occupant of a particular office is supposed to do. But there may be uncertainty as well about many other aspects of a role, including the membership of the role-set, the ends to be served, the role enactment, and evaluation of present role behavior. [Katz and Kahn, 1978, p. 206]

Annually, the Naval Postgraduate School hosts a two-week advanced seminar for Naval Organization Development consultants. At a recent seminar the problem of Commanding Officer/Executive Officer role conflict and role ambiguity was the topic of one workshop presented. The workshop was presented by two organization development consultants from the Alameda Human Resources Detachment. These consultants indicated that the problem of CO and XO role conflict and role ambiguity is frequently encountered within the commands they visited and felt that it lead to subsequent disharmony and inefficiency at various levels within the commands. Their belief that CO/XO role conflict would lead to poor performance of a command appears intuitively obvious, but this fact had not been empirically verified by them. In fact, to the best of this researcher's knowledge, no formal research has previously been done on this specific relationship.

The purpose of this study is to conduct such empirical research on role conflict and role ambiguity and the part

they play in the unique leadership situation faced by the CO/XO team of a naval surface ship. This will be done by first examining, with the aid of current literature, several of the reasons why role ambiguity and role conflict frequently exist between COs and XOs. The study will then examine the extent to which a ship's performance is affected by the level of role ambiguity which exists between the first and second officers in command.

While this author can envision numerous cases in which role conflict could exist on board a naval ship between a CO and his XO, it is not the primary emphasis of this study to examine role conflict. Rather, this paper will concentrate more on the phenomenon of CO/XO role ambiguity and its effect on a ship's performance.

The procedures used in this study will be described in detail in Chapter Three of this paper. Before describing these procedures, however, it is necessary to briefly review applicable literature to learn more about the reasons why role ambiguity often exists between a CO and his XO and its subsequent effect on organizational performance.

II. REVIEW OF LITERATURE

A. REASONS FOR ROLE AMBIGUITY

1. Need to Delegate

The introduction of this paper suggested that the major reason why role ambiguity exists between COs and XOs of naval ships is that while the Commanding Officer is held responsible for every aspect of his ship he must delegate responsibility to subordinates. While every good CO realizes this need to delegate, there are few definite directives or guidance on which tasks he should delegate and which he should retain. It, therefore, becomes the purview of each CO to delegate and retain authority for "the execution of details" as he or she sees fit. Not only does the manner in which authority is delegated vary from CO to CO; it was found to vary when a change in XOs occurred. There are several other particularities of the CO/XO relationship which can also contribute to role ambiguity.

At this point, the author feels that it is important to examine the unusual and, in many ways, unique relationship which exists between a ship's Commanding Officer and his Executive Officer. The relationship which has evolved is quite different than that found between the number one and number two members of most organizations and is an additional

source of role ambiguity. The uniqueness of this relationship will be examined by first reviewing relevant research concerning the effects of formal and informal "structures" within an organization, and then by surveying literature on the concept of Dual Management. An attempt will be made to show how these two areas contribute to the unusual CO/XO relationship and also why they can promote role ambiguity. The formal and informal command structures will now be examined in terms of the formal and informal "Chains of Command" which exist aboard ship.

2. Formal vs. Informal Chain of Command

One of the fundamental "classical" principles of an effective organization is the concept of a need for unity of command. So basic is this idea, it was listed as one of the fourteen "Principles of Management" by Henri Fayol in 1930. Fayol is acknowledged as the founder of the classical management school and his strong belief in this principle is reflected in the following statement concerning his theories of "Unity of Command":

Each employee must receive his or her instructions about a particular operation from only one person. Fayol believed that if an employee was responsible to more than one superior, conflict in instruction and confusion of authority would result. [Stoner, 1978, p. 43]

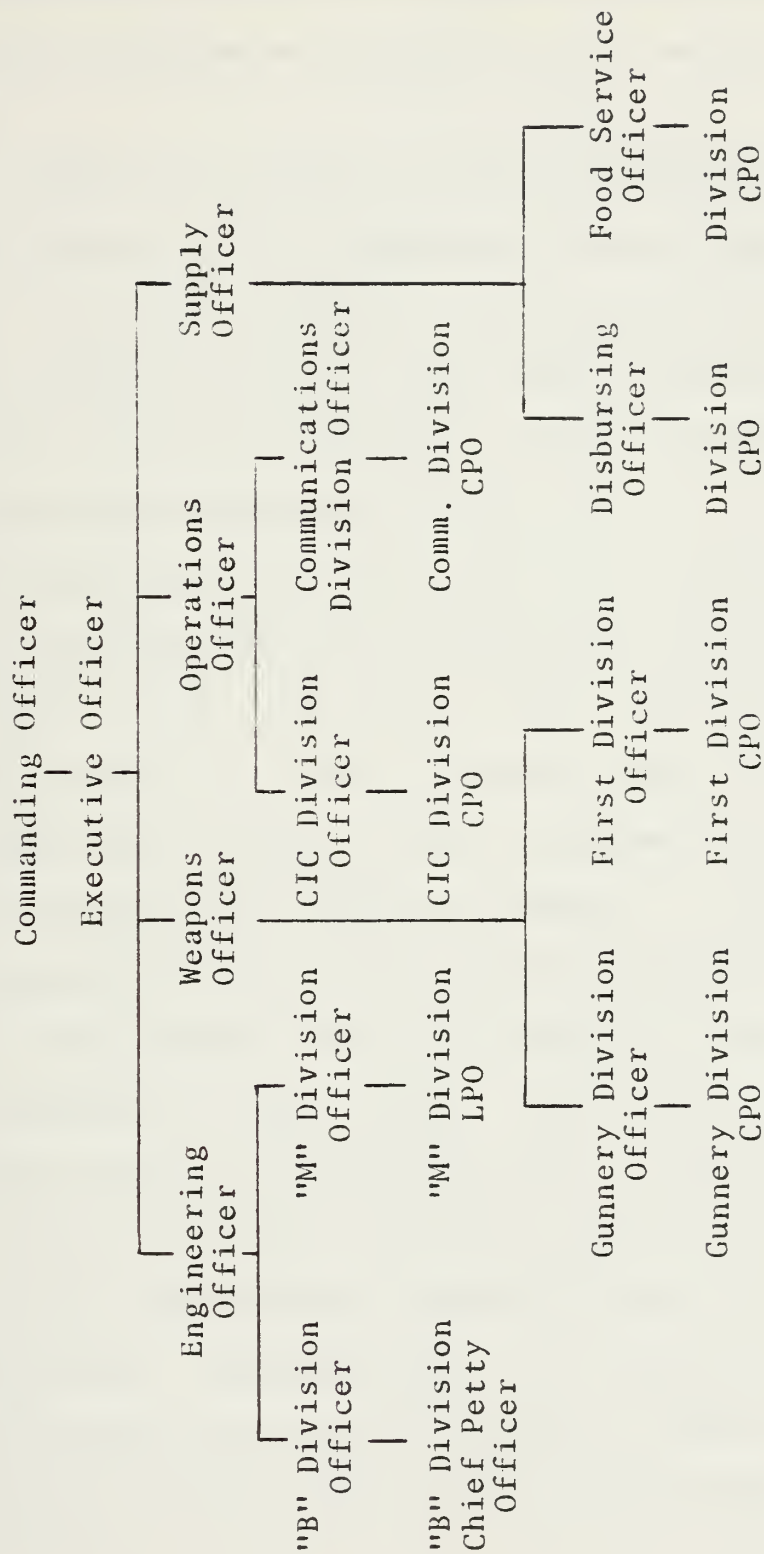
Fayol's idea of "Unity of Command" might be expressed in military terminology as a need for a strict "Chain of Command." This is a system in which every man or woman

within a command would report to (or work for) only his or her immediate superior within the command structure. An examination of the working relationship of the Commanding Officer and Executive Officer of a ship reveals that rather than "Unity of Command" the actual situation is closer to a Dual Management relationship. The concept of Dual Management will be discussed in greater detail in a subsequent section of this review.

If one were to examine a line diagram showing the structural organization of a ship, it would depict a rigid delineation beginning with the Commanding Officer, Executive Officer, the various department heads, division officers, division Chief Petty Officers and on down. Figure 2-1 shows a model of this structure and represents the advertised "Chain of Command" of the ship. However, if one asks a ship's Chief Engineer whom he would first inform that the ship has just had an engineering casualty, or ask the Weapons Officer whom he would first inform that the ship's number three gun mount is out of commission, both would immediately say, "Why, the CO (Commanding Officer), of course!" But wait a minute; what about the Chain of Command? Shouldn't the department head tell the Executive Officer and the Executive Officer tell the Commanding Officer? Answers to a few questions like these soon cause even the most casual observer to realize that the Chain of Command

FIGURE 2-1

FORMAL SHIPBOARD CHAIN OF COMMAND



Author's Note: These figures are not meant to be all-inclusive and will vary from ship to ship. They are presented here for illustrative purposes only.

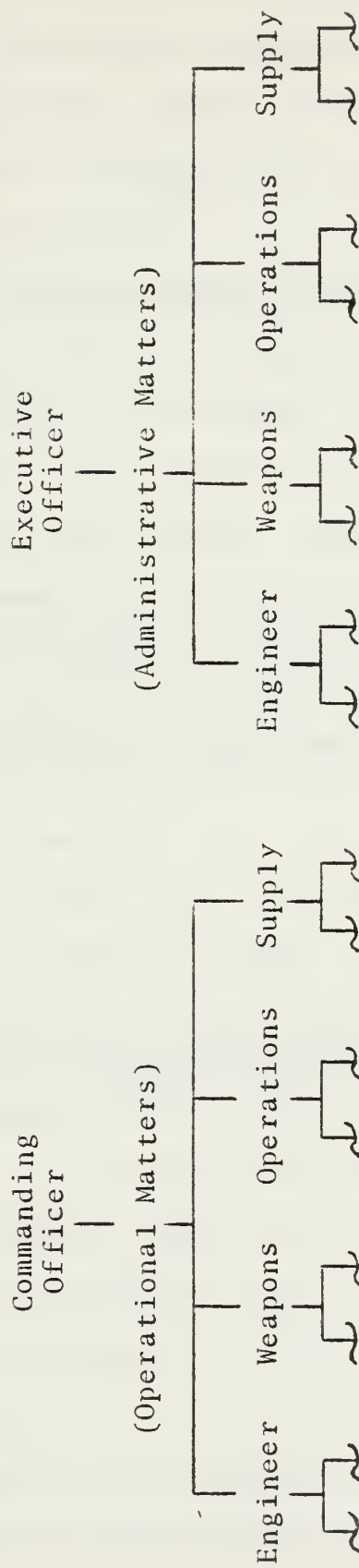
in Figure 2-1 is not really a true picture. Figure 2-2 shows a different version of a shipboard Chain of Command and one which conforms more closely to the actual command structure.

As discussed earlier, a ship's Commanding Officer is ultimately responsible for everything which occurs onboard his ship. In reality, however, the Executive Officer in most cases, handles the day-to-day administrative activities of the ship to free the Commanding Officer to concern himself with the external operations of the ship.

As previously discussed, the exact manner in which managerial functions/duties are delegated varies from ship to ship and CO to CO. The way in which these functions are delegated is part of a ship's informal "Chain of Command." In many cases the informal "Chain of Command" only remotely resembles the published "Chain of Command." Without excellent two-way communications between a ship's CO and XO it is easy to see how the informal chain of command can lead to problems of role ambiguity at their level. If problems of role clarification exist at the CO/XO level, it can be surmised it will be very difficult for those at other levels of the Command to learn the various informal "Chains of Command" that are present. Depending upon the situation, the informal command structure may require a person to report to anyone of several seniors rather than the one listed on the formal

FIGURE 2-2

INFORMAL (ACTUAL) SHIPBOARD CHAIN OF COMMAND



organization chart. This author contends that the inability of juniors to recognize these informal "Chains of Command" can create a great deal of ambiguity for the individual and inefficiency for the organization.

In his books, Silent Language and Beyond Culture, Edward Hall (1959, 1976) discusses in detail the formulation and implications of formal and informal relations within a culture or organization. He provides the following insight into the effect of violating informal command structures:

Mishandling the informal can often lead to serious difficulties which are apt to become aggravated since the participants in an informal situation are not fully conscious of what is going on. They only know that under a certain set of unstated rules they can act in a certain way and depend upon other people to react appropriately. [Hall, 1959, pp. 104-105]

The situation becomes even more acute when the environment changes as for example when a new CO assumes command and the informal "Chains of Command" change. Hall continues:

This informal expectancy is often ruptured when there is a conflict between two patterns within the context of our own culture or in the more familiar case of a cross-cultural situation. [Hall, 1959, p. 105]

In essence, the new CO will bring with him his own ideas on how "things should be done," that is, his own "informal." The XO and the rest of the command will, therefore, be forced to learn a new informal structure.

3. Dual Management

The final cause of role ambiguity to be considered is the perception held by many officers that a ship's CO

and XO should divide the upper level managerial tasks between them based on their position alone. Those who espouse this philosophy normally believe the CO should primarily assume the role of social-emotional leader and the XO should perform the task-oriented leadership functions. The division of roles on this basis has been referred to as Co-Management [Senger, 1971] and Dual-Management [Vaught and Mashburn, 1980].

Dual leadership theories, which emerged from research by Bale (1958), Etzioni (1965), and Burke (1967), attempt to establish a relationship between group effectiveness and the behavior of two leaders who have collective line authority over the group's members. [Kaplan, 1979, p. 28]

According to dual leadership theories, an individual with an authoritative leadership style tends to do well in a task-oriented situation. He is able to focus his attention on the short-range goal or problem and will usually do whatever it takes to get the job done. He thrives on challenges and needs short-range feedback. These characteristics allow such a person to be extremely effective in accomplishing task-oriented leadership functions. Because of his strong desire to achieve short-term objectives the authoritarian leader tends to be, or at least appears to be, insensitive to the needs of personnel working under him. Because people believe that the authoritarian leader is not really concerned about their welfare, he does not make a good counselor. The authoritarian's continued use of task-oriented behavior

will produce good results goal-wise. However, it has an adverse effect on morale. His subordinates view him as a task-master and, if he tries to change and behave in a social-oriented manner, he is still perceived by the group in his former role. He is locked into the role his subordinates have seen him operate in. [Vaught and Mashburn, 1980]

Likewise, research has shown that certain characteristics associated with a democratic leader are some of those which are necessary in a manager's job. For example, he is concerned with the feelings of others and has a strong need for frequent communication with his subordinates. [Boyatzis, 1974] Various literary works suggest that people must feel that their leaders are truly concerned for their welfare in order to perform well and to be loyal to the firm. [Bales, 1985; Bales and Slater, 1955; Katz and Kahn, 1978; Senger, 1971]

To the best of this author's knowledge, the Navy has made no formal attempt to instruct its officers in the validity or non-validity of Dual-Management theories. However, based on the action of some COs and XO's in the fleet, there appears to be considerable acceptance of this theory. In a report by John Senger, published in 1971, he states:

A survey of Naval Officers who served in 312 separate commands during their careers revealed that in 60% of

the cases the task and the social functions were divided between the Commanding Officer and the second in command. Within this 60%, the Commanding Officer assumed the social role 37% of the time, with the Executive Officer carrying out the task role. In the remaining 23%, the roles were reversed. In the 40% remaining, the situation was not so divided, the two officers both assumed the social role in 9%, and 19% the Commanding Officer assumed both task and social leadership roles, essentially acting in capacity of a "Great Man." In all the cases within the 19%, the officer was considered effective in both roles. [Senger, 1971, p. 79]

The relevance of Dual Management theory to this study is that Dual Management creates the potential for role ambiguity. Role ambiguity is likely to occur when the CO and XO of a ship have opposing views on the validity of this theory. The importance of good communication between a CO and XO to gain understanding of each other's position on this concept would appear to be of critical importance.

B. ROLE CONFLICT AND THE ORGANIZATION

The previous section of this chapter examined the relationship which exists on board a Naval surface ship, between the CO and XO and suggested several factors which are likely to create role conflict and role ambiguity. The attention of the chapter will now be turned toward a review of previous literature on role conflict and role ambiguity and its possible application to the current study.

1. Types of Role Conflict

One of the most often referenced books on the subjects of role conflict and role ambiguity is Organizational

Stress: Studies in Role Conflict and Ambiguity by Kahn, Wolfe, Quinn, Snoek and Rosenthal. Kahn et al. (1964) have conducted several detailed studies on these subjects and have identified six types of role conflict that they suggest are common in most organizations.

Stoner (1978) provides the following descriptions and examples of the six types of role conflict identified by Kahn et al. (1964):

1. Intrasender conflict occurs when a single supervisor presents a subordinate with an incompatible set of orders or expectations. For example, a division manager orders a purchasing agent to buy materials immediately at a price which requires prior home office authorization, and then warns the agent not to violate the rulebook regulations.
2. Intersender conflict arises when orders or expectations from one person or group clash with the expectations from other persons or groups. This can occur, for example, when a superior orders a foreman to engage in tighter supervision, while the work crew makes clear that any attempt to comply with this order will lead to serious trouble in the ranks.
3. Inter-role conflict occurs when the different roles played by the same person give rise to conflicting demands. In his roles as husband and father, for example, a man may be pressed to be home with his wife and family in the evening and on weekends, but in his role as loyal worker, the same man may have to put in a considerable amount of overtime to get his work done. This particular example of inter-role conflict is extremely common and often creates great tension, both on the job and at home.
4. Person-role conflict occurs when on-the-job role requirements run counter to the individual's needs or values. An executive ordered to bribe a domestic or foreign official might find the assignment completely antithetical to his or her moral values. Yet his or her desire for career success might make refusal to carry out the order difficult.

5. In role overload conflict, the individual is confronted with orders and expectations from a number of sources that cannot be completed within the given time and quality limits. Should quality be sacrificed in the interests of time? Should some tasks be carried out and others ignored? If so, which tasks should get priority? Dilemmas like these are a constant part of the manager's job.

6. Role ambiguity occurs when the individual is provided with insufficient or unclear information about his or her responsibilities. The individual is therefore uncertain about what he or she is "supposed" to do. Role ambiguity is often experienced by new managers who are given a set of duties and responsibilities without being told exactly how to carry them out. The stress experienced by the individual in such a situation can be considerable. [Stoner, 1978, pp. 536-538]

As noted above, role ambiguity is in essence, one form of role conflict. Most authors that have dealt with this subject tend to consolidate the first five types of role conflict listed above into one group which they refer to as "role conflict" and then deal with role ambiguity as a separate area. Hence much of the literature in this area discusses role conflict and role ambiguity as if they were separate rather than role ambiguity simply being a sub-set of role conflict. [Kahn et al., 1974; Katz and Kahn, 1978; Scott, Mitchell, and Birnbaum, 1981; Rizzo, House, Lirtzman, 1970; Schuler, 1975; Tosi and Tosi, 1970]

In keeping with the precedence set by previous researchers in this area, the terms role conflict and role ambiguity will be treated as if they are separate and distinguishable phenomena in this study.

2. Applicability to Naval Surface Ships

The fact that role conflict and role ambiguity exist in many organizations and that they create problems for the organizations as well as the individuals within the organization is well documented. Many of the conditions which lead to role conflict and role ambiguity for civilian organizations also exist aboard a Naval ship and have similar consequences. Rizzo, House, and Lirtzman (1970) provide the following passage which summarizes previous research on some of these conditions. Considering the dual command hierarchy under which Naval surface ships function, the passage is quite applicable to this study and also provides an excellent list of references on the subject as well.

Rizzo et al. (1970) state:

Professional organizations frequently exhibit violations of the chain-of-command principle. As Blau and Scott (1962) pointed out, two sources of authority exist when organizational discipline is based not only on position power--supported by formal sanctions, and derived from the legal contract governing employment of the organizational member and the formal sanctions vested in the superior position--but also on professional expertise which is enforced by collegial authority. Several studies have shown that (1) multiple authority disrupts the individual's orientation to his organization or to his profession by requiring him to choose between the two (Kaplan, 1959; Etzioni, 1959; LaPorte, 1965; Evans, 1962; Reissman, 1949; Gouldner, 1958a, 1958b); (2) individuals oriented primarily toward their professional norms are more critical of the organization and more likely to ignore administrative details (Blau and Scott, 1962); and (3) professionals in such organizations frequently experience stress as a result of being caught in the middle. (Kaplan, 1959; LaPorte, 1965; Evan, 1962).
[Rizzo, et al., p. 151]

3. Effects of Role Conflict and Role Ambiguity

A great deal has been written concerning the negative effects of role conflict and role ambiguity on individuals and organizations. The theme running through these articles is that role conflict and role ambiguity have an overall adverse effect. The following quotations are typical of those found in the literature describing the effect of these two conditions on organizations and individuals within those organizations; Tosi (1971) states that:

Role conflict was negatively correlated with job satisfaction and positively correlated with job threat and anxiety. [Tosi, 1971, p. 17]

Moreover, role conflicts tend to reduce one's general satisfaction with the job and the conditions surrounding it, and to undermine one's confidence in his superiors and in the organization as a whole. [Kahn, et al., 1964, p. 66]

Cohen concluded that ambiguity of the situation and inconsistency of direction raised the anxiety of subordinates, caused a less favorable attitude towards supervision, and lowered productivity. [Tosi, 1971, p. 10]

The presence of conflicting and/or ambiguous pressures is considered to indicate a level of organizational stress. Both role conflict and role ambiguity have been demonstrated to be related negatively to role behavior of the focal person. [Tosi, 1971, pp. 8-9]

As Tosi (1971) and others have noted, the negative effects of role conflict and ambiguity apply to the physical well-being of individuals as well as the organization. Tosi continues:

Responses to role pressures may take the form of behavior, affective reactions, and/or physiological symptoms. The

specific nature of the response is a function of the role pressures as affected by the interpersonal relations and the personal attributes of the focal person. When the sent role pressures are clearly understood and there are no inconsistencies with other role demands, there will be few problems. However, the existence of role conflict and role ambiguity could pose problems for the individual and the organizations. [Tosi, 1971, p. 9]

Smith (1957) conducted an experimental study with 140 college students in which he varied the amount of role ambiguity the students were subjected to and measured the effect on problem solving. His results as reported by Rizzo, et al., (1970) showed that:

(1) when groups were asked to solve problems without clarification of the role each member was to perform their efficiency was significantly less than when the roles were made clear; (2) role ambiguity markedly reduced group satisfaction with the experience; and (3) the hostility level was significantly higher for groups under conditions of role ambiguity as compared to control groups. [Rizzo, et al., 1970, p. 154]

In a discussion of role ambiguity, Scott, Mitchell and Birnbaum (1981) state:

The overall picture is that ambiguity makes it harder for us to do our jobs. We prefer certainty, . . . it should be obvious that in ambiguous situations, the contingencies about what-leads-to-what are unclear. This is a very unpleasant situation for most employees. [Scott, et al., 1981, p. 105]

Stoner (1978) notes that role ambiguity is often a problem for new managers who are assigned a set of duties but are not told exactly how to carry them out. He adds that:

The stress experienced by the individuals in such a situation can be considerable. [Stoner, 1978, p. 538]

An even more ominous picture of the problem is presented by Scott et al. (1981) in the following passage:

Research shows ambiguity leads to greater stress and tension and lower satisfaction and self-esteem. Some data from medical research shows that ambiguity may increase heart problems, and lead to anxiety and depression. Finally some studies with more "hard" data suggest that turnover is greater and productivity lower when role ambiguity exists. [Scott et al., 1981, p. 105]

Kahn et al. (1964) state:

In their extreme form, conflict and ambiguity pose for the individual an almost insurmountable problem. . . . Conditions of conflict and ambiguity, therefore, are not merely irritating; in persistent and extreme forms they are identity destroying. [Kahn, et al., 1964, p. 61]

Some people experience a rather marked sense of futility when confronted with conflicts. A loss of self-esteem is often apparent. Others show symptoms of acute anxiety, and of confusion and indecision, which may leave them immobilized for a time. And for a few, symptoms of hysteria and psychosomatic disorders seem to be connected to tensions engendered by conflicts. [Kahn et al., 1964, p. 67]

4. Effect of Conflict and Ambiguity vs. Organizational Level

As the previous examples demonstrate, the literature is rather specific concerning the adverse effects of role conflict and role ambiguity. One inconsistency, however, is that research indicates that role conflict and role ambiguity are not always negatively related to job satisfaction. Schuler (1975) provides the following summary of these findings:

Tosi and Tosi (1970) and Tosi (1971) found that role conflict and job satisfaction were negatively related, but they found no relationship between role ambiguity and job satisfaction. Rizzo et al. (1970), House and

Rizzo (1972), and Hamner and Tosi (1974) found significant negative relationships between job satisfaction and role ambiguity but no relationships between job satisfaction and role conflict. [Schuler, 1975, p. 683]

Subsequent research has suggested that these inconsistencies can be reconciled by comparing the relationships between role ambiguity and job satisfaction, and between role conflict and job satisfaction in light of an individual's position within the organizational structure. These studies indicate that role ambiguity and job satisfaction are more negatively related than are role conflict and job satisfaction for employees at the higher levels of an organization. [Hamner and Tosi, 1974; Schuler, 1975]

The following rationale for these differences is provided by Kahn et al. (1964) and Hamner and Tosi (1974). They suggest that role conflict is more stressful to lower level employees because they are more dependent on their supervisor and have little power to influence him. Since their role within the organization is normally well-defined, role ambiguity is less of a problem.

Employees at the upper level of the organization are better able to control role conflict situations because they have the asset or ability to deal with them. However, cases of role ambiguity are not as easily handled and hence cause greater stress. [Kahn et al., 1964; Hamner and Tosi, 1974]

This current study is concerned with how role conflict or role ambiguity between a ship's CO and XO affects the

ship in a variety of areas and at different levels within a command. Chapter three describes the methodology used and relies on many of the theories and ideas presented in this literature review.

III. METHODOLOGY

The purpose of this chapter is to provide the reader with an overview of the research method employed for this study. It describes the sample population, the data collection methods, the research hypotheses to be tested, and the procedures for the statistical analysis of data collected.

A. STUDY OVERVIEW

The objective of this study was to determine to what extent unit effectiveness of Naval surface ships is associated with role ambiguity between a ship's Commanding Officer and his Executive Officer. The study was designed to empirically test for the existence of a correlation between the level of role ambiguity between the CO and XO and unit effectiveness on several key measures.

As most readers of this study are aware the Navy is composed of a number of different subsets or communities. These communities include shore commands, surface ship commands, aviation commands, and submarine commands. The author of this study chose to limit the test population to surface ship commands for several reasons.

These reasons include:

- (1) The large number of surface ships homeported in relatively close proximity to the Naval Postgraduate School facilitated data collection.

- (2) Standardized performance data was available for surface units.
- (3) The relationship between the CO and XO of a surface ship is unique in many respects from the other types of Naval commands. The author was interested in examining this relationship in greater detail.
- (4) The potential for wide-range application of any significant findings to improve the performance of a large percentage of Naval commands.
- (5) The professional background of the author and his personal interests in this area was also a major factor in limiting the study to surface units.

Many types of indicators have been used by previous researchers to assess unit performance. Some of these include Naval Force Status Reports (NAVFORSTAT reports), refresher and team training scores, medical and non-judicial punishment records, various readiness inspections, weapons firing exercises, ship qualification trials, squadron efficiency awards, and retention statistics. [Kaplan, 1979] This researcher selected three indicators of unit performance. These were NAVFORSTAT data, retention statistics, and unit cleanliness and appearance. It was felt each of these

measures would be affected to some extent by the level of CO/XO role ambiguity. Additionally, these measures were uniformly available for each unit in the sample population.

B. SAMPLE CHARACTERISTICS

A sample of twenty Naval surface ships was used for this study. Of the twenty ships fifteen were homeported in San Diego and five in Alameda. The sample included destroyer, amphibious, and auxiliary type ships. A convenience sample, subject to the following criteria, was used:

- (1) The ships were selected on their inport availability in either San Diego or Alameda.
- (2) The ship's CO/XO team had to have been together for at least six months prior to administration of the questionnaire.

Other than the two criteria listed above, the sampling was done on a random basis. The researcher would first call the ship's XO to confirm whether or not criterion two was met. If the CO/XO team had been together for at least six months, they would be asked to fill out a questionnaire. It was felt that for teams which had been together for less than six months the level of role ambiguity would not be a good indicator of differences in unit performance. The level of ambiguity would be expected to be high for a new team, but it would be expected to decrease naturally over time. The key idea of the study was to see if in cases where

a high level of ambiguity still existed after more than six months, unit performance was lower than for other ships in the sample.

C. THE INSTRUMENT

As has been previously stated the main focus of this study was to see what effect CO/XO role conflict in general, and role ambiguity in particular, have on a ship's performance in several key areas. The questionnaire included as Appendix A was developed by the author to measure the level of role ambiguity between COs and XOs. The questionnaire consists of a cover letter and two additional parts. Part I asks for general demographic information, and part II contains a list of 30 leadership and managerial tasks.

The cover letter which accompanied the questionnaire was written to fulfill several functions. In addition to giving instructions on how the questionnaires were to be filled out and the purpose of the study, it provides a statement of confidentiality. As noted by Stone (1978), respondents are likely to be more honest in their responses if they are convinced their inputs are anonymous. To this end, not only was the statement of confidentiality included in the cover letter, this promise was also reaffirmed to each respondent by the author prior to their completing the questionnaire.

The cover letter also provided a legend of the code letters to be used to complete part II of the questionnaire. The codes are a modified form of those used by Beckhard and Harris (1977) in conjunction with "Responsibility Charting."

Responsibility charting is a method proposed by Beckhard and Harris which can be used by an organization to help clarify employee roles and allocate work responsibilities. [Beckhard and Harris, 1977]

Part I of the questionnaire asks for relatively straightforward information. The questions are easy for the respondent to answer and are non-threatening in nature. The intent of part I is two-fold; first it gathers useful demographic data, and second, it helps put the respondent somewhat at ease. This allows the subject to slowly work his way into the questionnaire and helps to reduce any anxiety he may be feeling about the survey.

Part I also asked each CO and XO to assess on a scale of (1) to (5) to what extent they had discussed the division of command leadership and managerial tasks. The purpose of this question was to see if individual CO/XO teams were in agreement on the extent to which they had discussed these matters. The author was interested in seeing whether there was a relationship between the extent to which a team had discussed these issues and the level of role ambiguity as measured in part II of the instrument.

Part II of the questionnaire contains a list of 30 leadership or managerial tasks normally performed by a ship's CO or XO. This list was developed from several sources including the book Command at Sea, the author's own experience, and inputs from an NPS faculty member with previous ship command experience. The list was in no way meant to be all inclusive but rather to provide a measurement tool. An attempt was made to select tasks which routinely occur and which COs and XOs who communicated well with each other would be able to independently identify which officer was primarily responsible for the task. The degree to which they were or were not able to do this was used to determine the level of role ambiguity.

Another consideration in the design of the "questions" in part II was to see to what extent the practice of Dual Management discussed earlier was indicated by the respondents. Since some of the questions dealt with "task-oriented leadership," and others dealt with "social-oriented leadership," the manner in which responsibilities were divided was able to be investigated in light of Dual Management theory as well. The results of this investigation are to be the subject of a subsequent report.

D. SURVEY METHOD

Since a critical element of this study was to determine the level of role ambiguity which existed between a CO and

his XO, it was necessary for them to fill out the questionnaire independently and without collusion. In order to control for this factor, the author administered each questionnaire personally. The same process was used with each ship to ensure uniformity of questionnaire administration. The CO and XO were briefed separately on the purpose of the questionnaire and the use of the results. The factor of confidentiality was stressed and any questions they had were answered. They would then complete the questionnaire without knowledge of how their counterpart had responded. After they both completed the forms, some CO/XO teams wanted to compare responses, some chose not to. The comparing of responses provided them with what this researcher hopes was useful feedback and yet did not bias the study.

The level of role ambiguity for each command was compared with three categories of performance data. These categories are briefly discussed below:

1. Retention Statistics

Retention statistics for ships are available in a variety of forms covering various periods of time. The statistics are broken down into a number of different categories, including first-term, second-term, and career reenlistments. Statistics are computed quarterly for each ship for each of these categories. An overall net retention percentage is also computed for each ship on a quarterly

basis. The overall retention statistic provides the percentage of personnel aboard a ship who were eligible to reenlist versus those who actually reenlisted in all three categories. For this study, an average retention percentage for the past six months was used. That is the overall retention percentage for the second and third quarters of 1982 were averaged together to obtain an indicator of how well the ship was performing in this area.

2. Naval Force Status Report (NAVFORSTAT) Data

The NAVFORSTAT report provides a ship's commanding officer with a means of keeping both his operational and administrative commanders advised of the readiness of his ship to perform her assigned missions. The Commanding Officer is required to submit estimates or readiness ratings for his ship on a periodic basis and whenever a significant change of readiness occurs. Four measured resource ratings and an overall rating are computed by the ship based on its abilities to perform her assigned missions. The readiness ratings are based on a scale from (1) to (5). A measured resource rating of (1) indicates complete readiness of a ship to perform in her assigned mission areas and a (4) indicates complete mission degradation. A rating of (5) is a special case for a unit which due to service programs (such as an overhaul period) does not possess the prescribed wartime resources or cannot perform a wartime mission for which it is organized. [OPNAVINST C3501.66B]

Four measured resource ratings and the overall readiness rating were looked at for purposes of this study. A brief description of each of these follows:

1. Overall Readiness Rating

This rating represents the combined effects of all primary mission and resource area ratings. Mission areas included in the overall rating will vary from ship type to ship type, but would consist of such areas as mobility, command and control, amphibious warfare, anti-submarine warfare, and surface warfare.

2. Personnel Readiness

This rating indicates how closely the number of personnel available on board a unit compares to the structured strength (officer and enlisted) specified by the ship's Unit Manpower Authorization. It is designed to provide an estimate of how effectively the ship should be able to perform assigned missions based on her current manning level.

3. Supply Readiness

This measure provides an estimate of how closely quantities of wartime combat essential equipment, support equipment and supplies which are prescribed to perform the stated wartime mission compare with those on board the unit.

4. Equipment Readiness

This rating compares the combat-essential equipment or subsystems and major end items prescribed to perform a ship's wartime missions with the equipment onboard. This measure considers both missing and inoperative equipment in arriving at an estimate of readiness.

5. Training Readiness

This is an estimate of how the present level of training compares with the training requirements specified by the ship's type-commander for a fully trained ship. [OPNAVINST C3501.66B; Kaplan, 1979]

The mission readiness ratings used for this study were based on status of the sample ships as of September 30, 1982. The ratings were obtained from the quarterly force validation messages for the third quarter of 1982. These scores were felt to be the best indicator of the current status of the sample ships during the time frame the role ambiguity questionnaires were being administered during the period 29 September through 22 October 1982.

3. Appearance and Cleanliness

The general appearance and cleanliness of a Naval ship is viewed by many as an important performance criterion. The essence of this point is captured in the following quotation on shipboard cleanliness from Command at Sea:

Run she will and shine she'd better. It is an excellent motto for any ship interested in maintaining a high state of material readiness. If the ship is "good" in this sense, it is usually a "good ship" in the morale and operational sense, also because good men like to be around good equipment and it takes good men to keep equipment in good shape. [Cope, 1966, p. 297]

Because of the emphasis placed on a ship's appearance and cleanliness, a "rough" measurement of this attribute was included in this study. An appearance/cleanliness score or rating was assigned to each ship visited. This researcher rated the ships in the sample from one to five, with one indicating a very clean and well-maintained ship and five indicating an extremely dirty and poorly maintained ship. These ratings were based only on the observations of the author and were not confirmed by others. However, in this author's opinion, there was a marked difference in the appearance of the ships and this measure is a potentially useful one. It is readily acknowledged that a second or third opinion on this measure would have been helpful in reducing some of the subjectiveness of this measure.

E. RESEARCH HYPOTHESES AND STATISTICAL METHOD

Upon completion of the data collection phase of the study described above the results were analyzed with the aid of the Statistical Package for the Social Sciences (SPSS) computer programs. SPSS is an integrated package of computer programs designed specifically for use with social science data. It is a system which allows the user to

analyze data in an easy and convenient manner. [Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975]

The SPSS programs and sample data collected were used to test the following research hypotheses:

1) Hypothesis number one (H:1):

CO/XO teams which have discussed the division of command leadership and managerial tasks to a greater extent will have lower levels of role ambiguity (i.e., there will be a significant negative correlation between extent of discussion and level of role ambiguity).

2) Hypothesis number two (H:2):

Ships on which the CO/XO teams have lower levels of role ambiguity will have better (lower) NAVFORSTAT performance ratings (i.e., there will be a significant positive correlation between level of role ambiguity and NAVFORSTAT performance ratings).

3) Hypothesis number three (H:3):

Ships on which CO/XO teams have lower levels of role ambiguity will have better (lower) scores for appearance/cleanliness (i.e., there will be a significant positive correlation between level of role ambiguity and appearance/cleanliness scores).

4) Hypothesis number four (H:4):

Ships on which the CO/XO team have lower levels of role ambiguity will have better (higher) retention rates,

(i.e., there will be a significant negative correlation between level of role ambiguity and retention rates).

A detailed discussion of the results of this study and an analysis of the data are presented in Chapter Four.

IV. DESCRIPTION OF FINDINGS

This chapter describes the results of the statistical analysis performed on the data collected in connection with this study. The thrust of the analysis was to determine the degree of correlation which exists between CO/XO role ambiguity and a ship's performance. The manner in which the data was collected was discussed in Chapter Three of this report; the author's attention in this chapter will focus primarily on the implications suggested by the data.

A. DATA SUMMARY

The following summary includes the variable names, a synopsis of the key results of each variable, and where appropriate, an explanation of the attribute measured by a given variable. In several cases the author has also included statements designed to aid the reader in interpreting the results.

1. Level of Role Ambiguity

The range of possible scores on this attribute was from zero (0) to thirty (30), with a low numerical score indicating a lower level of role ambiguity.

The level of role ambiguity for the CO/XO teams surveyed ranged from a low of one (1) to a high of thirteen (13). A mean score of 6.75 and a mode of 5.0 were obtained.

Eighty-five percent (85%) of the scores were 5.0 or higher for the attribute. These scores suggest two points to the author: First, the wide range of scores indicates that the level of role ambiguity does vary considerably from one ship to another and, second, the relatively high mean score of 6.75 indicates that on the average some role ambiguity existed between CO/XO teams on better than 20 percent of the leadership tasks listed on the measurement instrument.

2. Extent of Discussion from CO's View

This was a measure of the extent the COs surveyed felt they had discussed with their XOs the manner in which they desired the command leadership tasks to be handled. The scores on this item ranged from a low of two (2), which indicated "To a little extent," to a high of five (5), which meant "To a very great extent."

3. Extent of Discussion XO's View

This is the same measure as described above but from the XO's point of view. The scores received from the XO's also ranged from two (2) to five (5). However, they had a mean score of 3.55 and a mode score of 3.00 on this question. Seventeen (17) out of twenty (20) of the XOs marked this question with a four (4) or lower. This would suggest the collective XOs felt the distribution of leadership tasks had been discussed to a lesser extent than did their COs. This point will be examined in greater detail later in this chapter.

4. Overall Readiness Rating

As noted in Chapter Three, this NAVFORSTAT rating is in essence a combined readiness rating for a ship based on a number of different factors. The reader is reminded that "all" NAVFORSTAT ratings reported on in this paragraph and below are scaled from one (1), corresponding to complete mission readiness, to four (4), corresponding to complete mission degradation. The Overall Readiness Rating scores for ships in this study ranged from two (2) to four (4). This rating had a mean score of 2.95.

5. Personnel Readiness Rating

The scores on this NAVFORSTAT rating ranged from one (1) to four (4) and had a mean score of 2.25.

6. Supply Readiness Rating

This measure was also obtained from NAVFORSTAT data. A mean score of 1.90 on a range from one (1) to four (4) was observed.

7. Equipment Readiness Rating

Also a NAVFORSTAT measure, the equipment readiness rating scores ranged from one (1) to four (4) with the mean score being 2.2.

8. Training Readiness Rating

This is the last NAVFORSTAT rating which was examined. On this measure the mean was 1.55 and the range was from one (1) to four (4).

9. Retention Rate

The retention rates for the ships ranged from a low of thirteen percent (13%) to a high of fifty-nine (59%). The mean retention score was 32.35%. However, the scores were fairly evenly distributed over the entire range of retention rates and no central tendency was noted. As discussed earlier, the retention ratings used in this study were the ship's overall retention percentages for the six-month period from April 1982 through August 1982.

10. Appearance and Cleanliness

As discussed in Chapter Three, this measure was based on the author's assessment of the ship's general appearance and cleanliness. The scores ranged from one (1), indicating exceptional appearance, to five (5), indicating an extremely dirty ship. A mean score of 2.45 was observed.

11. Composite of All Rating Variables

This measure was computed based on an arithmetic average of the five NAVFORSTAT ratings plus the retention and appearance measures. The retention ratings were grouped into categories from (1) to (5) prior to their inclusion in this composite. Appendix B shows the manner in which the ship's retention ratings were assigned into these categories.

The composite rating was calculated in an attempt to obtain an overall performance indicator for each ship. The composite scores ranged from a low of 1.71 to a high of 3.14.

A lower score on this measure indicated better performance. A score of one (1) would correspond to the best possible rating and four point two eight (4.28) the worst possible rating. The mean composite score was 2.315 for the ships surveyed. Seventy-five percent (75%) of the ships had composite scores of 2.57 or lower (better).

Table 4-1 provides a list of the raw data collected during this study and which has been summarized above. The reader will note that the NAVFORSTAT raw data has been omitted. This was necessary because NAVFORSTAT data is classified information and the author desired to keep this study unclassified. The author has included in Appendix C of this study the frequency charts and histograms of the data collected on those items which are not of a classified nature.

B. DATA ANALYSIS

As has been noted several times, the main focus of this study was to see what relationship (if any) exists between the level of role ambiguity between a CO and his XO and the performance of their ship. In Chapter Three the author listed four hypotheses concerning the relationships which were to be tested. For the reader's convenience, these hypotheses are restated below:

H:1--CO/XO teams which have discussed the division of command leadership and managerial tasks to a greater

TABLE 4-1

TABULATION OF RAW DATA

Unit Number	Level of Role Ambiguity	Extent of Discussion from CO's View	Extent of Discussion from XO's View	Retention	Appearance/ Cleanliness	Composite Rating
1.	6	4	5	26	1	1.86
2.	5	5	4	20	5	2.59
3.	6	4	4	29	2	2.00
4.	5	4	3	31	1	1.86
5.	6	4	4	31	2	2.57
6.	13	3	3	27	5	3.14
7.	3	5	5	44	4	2.71
8.	8	4	3	59	1	2.28
9.	12	3	3	18	2	2.86
10.	7	4	3	32	1	2.14
11.	7	4	3	31	3	3.00
12.	7	3	5	46	3	2.14
13.	7	5	4	45	4	2.57
14.	13	3	3	17	2	2.57
15.	5	3	4	33	3	2.00
16.	6	2	2	40	1	2.71
17.	3	4	2	13	3	2.57
18.	1	4	4	29	1	1.86
19.	10	2	3	44	2	2.00
20.	5	4	4	32	2	1.71

Note: Overall Readiness, Personnel Readiness, Supply Readiness, Equipment Readiness, and Training Readiness ratings have been omitted due to their security classification.

extent will have lower levels of role ambiguity (i.e., there will be a negative correlation between Extent of Discussion from CO's View and Level of Role Ambiguity, and Extent of Discussion from XO's View and Level of Role Ambiguity).

H:2--Ships on which the CO/XO teams have lower levels of role ambiguity will have better (lower) NAVFORSTAT performance ratings (i.e., there will be a positive correlation between Level of Role Ambiguity and Overall Readiness, Personnel Readiness, Supply Readiness, Equipment Readiness, and Training Readiness).

H:3--Ships on which the CO/XO teams have lower levels of role ambiguity will have better (lower) scores for appearance/cleanliness (i.e., Level of Role Ambiguity and Appearance will be positively correlated).

H:4--Ships on which the CO/XO teams have lower levels of role ambiguity will have better (higher) retention rates (i.e., Level of Role Ambiguity and Retention will be negatively correlated).

Because of the limitations placed on this researcher by time and availability of ships to survey, a sample of convenience, rather than purely random sample was used for this study. Since the study was not completely random, the data was analyzed using non-parametric tests. The principal procedure used to test the above hypotheses was the examination

of Spearman correlation coefficients. These are also known as the Spearman's rho (denoted r_s). The coefficients obtained with the Spearman procedure vary from +1.0 (indicating a perfect positive relationship between two variables) to -1.0 (indicating a perfect negative relationship). A coefficient of 0.0 indicates that no relationship at all exists between the two variables.

Table 4-2 provides a summary of the Spearman correlation coefficients for the variables tested in this study and shows to what extent they are related to the level of role ambiguity (LRA). Also included in this table is the significance level for each coefficient.

Hypotheses (H:1) through (H:4) will now be examined in light of the data presented in Table 4-2. Due to the small size of the sample used in this study a significance level of 0.10 or less was considered to be statistically significant for purposes of this analysis. The reader is, of course, free to draw his own conclusions from the data.

1. Hypothesis (H:1) appears to be very well supported by this study. Both Extent of Discussion from CO's View and Extent of Discussion from XO's View show a relatively strong negative correlation with Level of Role Ambiguity. The -0.4775 coefficient for Extent of Discussion from CO's View was found to be significant to the .017 level. Extent of Discussion from XO's View coefficient of -0.3326 at a

TABLE 4-2

SPEARMAN CORRELATION COEFFICIENTS

The following table lists the values of the Spearman correlation coefficients for CO/XO level of role ambiguity and the remaining variables used in this study. In addition to the coefficient is the level of significance for each correlation coefficient:

<u>VARIABLE</u>	<u>COEFFICIENT</u>	<u>SIGNIFICANCE</u>
Extent of Discussion from CO's View	-0.4775	.017
Extent of Discussion from XO's View	-0.3326	.076
Overall Readiness	0.3046	.096
Personnel Readiness	0.3981	.041
Supply Readiness	0.3103	.092
Equipment Readiness	0.0218	.464
Training Readiness	0.3792	.050
Retention Rates	0.0592	.402
Appearance/Cleanliness	0.0662	.391
Composite Score	0.3926	.043

significance level of .076 does not indicate as strong a negative relationship but still provides good support for the hypothesis. This would suggest that Level of Role Ambiguity can be reduced by the CO and XO actively discussing the distribution of managerial/leadership tasks.

2. Hypothesis (H:2) was partially supported by this study. The strongest relationships were indicated between Level of Role Ambiguity and Personnel Readiness and Training Readiness. Both of these measures were significant to the .05 level or better. If we relax the significance level to 0.10, the .3046 coefficient for Overall Readiness and .3103 coefficient for Supply Readiness can also be viewed as supporting the hypothesis. The data does not indicate that any relationship exists between Level of Role Ambiguity and Equipment Readiness. This result is possibly due to the fact that the direct authority for ensuring a ship's manning level, measured by Personnel Readiness, and Training Readiness would be major concerns at the CO/XO level.

3. Hypothesis (H:3), that Level of Role Ambiguity is positively correlated with a ship's cleanliness and appearance, was not supported by the data from this study. The near zero coefficient received for this variable was surprising, but is possibly explained in part by the rather "rough" measure used by the researcher to gather data on this variable. It is felt that a more formal and detailed

measure of appearance and cleanliness based on the assessments of several observers would have been more meaningful and might have yielded different results.

4. Hypothesis (H:4) on retention was also not supported by this study. The near zero correlation on this variable is very difficult to explain. The only explanation that the author can offer is that the decision of a sailor to stay in the Navy is the result of many different factors. The Level of Role Ambiguity between the CO and XO apparently is simply not that important a factor in this decision. As with the appearance variable, a larger and more sophisticated study on the relationship between Level of Role Ambiguity and retention might support this hypothesis.

5. As a final test to determine whether Level of Role Ambiguity is related to a ship's performance, a correlation coefficient was determined for the composite rating calculated for each ship. The manner in which the Composite Performance scores were determined was discussed in paragraph VI, A.11 above. The Composite score was designed to give the researcher an overall measure of a ship's performance effectiveness. As can be noted in Table 4-2, the correlation coefficient for Level of Role Ambiguity and Composite Performance was .3926 and was significant to the .043 level.

While some of the individual variables measured in this study failed to support the stated hypotheses, the strong

positive correlation between Level of Role Ambiguity and Composite Performance scores suggests that a ship's performance is, in fact, significantly affected by the Level of Role Ambiguity between its CO and XO.

C. RESULTS OF "t" TEST

As was pointed out in paragraph IV, A-3, the initial data examined suggested that the ship's COs felt they had discussed the matter of how leadership tasks should be handled to a considerable extent (mean score of 3.65), whereas the XOs sampled responded less positively on this item (mean score of 3.55). The author believed that this might be an indication that the XOs desired additional guidance in this area. That is, the XOs did not feel that this issue had been discussed enough and might therefore cause them undue anxiety. If this proved to be an accurate assessment of the situation, a case could then be built for recommending to COs that a greater amount of guidance on this subject was desired by their XOs.

The author, therefore, decided to see if the difference in the mean scores for Extent of Discussion from CO's View and Extent of Discussion from XO's View was, in fact, statistically significant. The "t" test was used to evaluate this relationship. The results of this test are listed in Table 4.3. The test failed to support the claim that there was a statistically significant difference between

TABLE 4-3

"t" TEST RESULTS

VARIABLES	MEAN	STD. DEV.	DIFFERENCE	t-VALUE	DF	SIGNIFICANCE LEVEL
Extent of Discussion CO's View	3.65	0.813				
Extent of Discussion XO's View	3.55	0.887	0.10	0.49	19	0.629

the mean scores. While the mean score for Extent of Discussion from XO's View is slightly less, this difference could easily have been caused by sampling error rather than population differences.

D. TASK VS. SOCIAL-EMOTIONAL

Another interesting observation which can be made by viewing the data in Table 4-2 is that Level of Role Ambiguity is strongly correlated with the NAVFORSTAT variables which deal primarily with social-emotional related issues, specifically Personnel Readiness and Training Readiness. Conversely, the variable Equipment Readiness which would be primarily task related shows no correlation with Level of Role Ambiguity. The variable Supply Readiness which would involve a combination of social-emotional and task-oriented behavior was shown to have a fairly strong relationship with Level of Role Ambiguity.

This suggests to the author that high levels of role ambiguity between COs and their XOs will have the greatest effect on shipboard performance measures which are most directly related to social-oriented leadership. Likewise, those performance measures which are more closely related to task-oriented leadership are least affected by the Level of Role Ambiguity between the CO and XO. This might also help to explain why the ships' appearance ratings failed to show any correlations with Level of Role Ambiguity.

Maintaining a "clean" ship certainly requires task-oriented leadership.

Further research would be required to understand the relationship between Level of Role Ambiguity and task-oriented leadership versus social-oriented leadership. The data of this study does, however, suggest that the social-emotional oriented leadership measures are most affected by the Level of Role Ambiguity.

This chapter has provided the reader with a look at the data which resulted from this study and the author's interpretation of the salient points derived from it. The author also interjected possible explanations of deviations in the expected relationships where it was felt appropriate. The author will now conclude this paper by reviewing the key points of the study and providing recommendations for possible follow-on research projects.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

Taking command of a ship is a straightforward procedure, well covered by written directives. The problem of exercising command as to produce an effective fighting unit are not always so simple. . . . [Cope, 1956, p. 4]

For those readers who have had command of a Naval ship the significance of the above quotation need not be expounded upon. For those who have chosen other career paths the statement may have no significance. To those remaining readers who aspire to the goal of "Command at Sea," the author would recommend careful consideration of these words.

Not only are the "problems of exercising command. . . not always so simple," they are often exceedingly difficult! This study focused primarily on just one aspect of command, the relationship of a Commanding Officer to his second in command, his XO. An attempt was made in the study to show how role ambiguity affects this relationship, and the effect role ambiguity can have on a ship's performance. Even in this one aspect of command, the potential for numerous problems was observed.

The author began this report by examining the unique relationship which exists between a ship's commanding officer and his executive officer. Several factors of the relationship which could lead to role conflict and role

ambiguity were discussed. These factors were: the need to delegate, the existence of formal and informal "Chains of Command," and the influence of belief in Dual Management theory concepts.

Having described why the CO/XO relationship creates the potential for role conflict and role ambiguity, the adverse effects which role conflict and role ambiguity can have on an organization were examined with the aid of applicable literature. This examination indicated that role problems can have a pronounced negative impact on both organizations and the individuals within the organizations. With these thoughts in mind the author set out to empirically answer two questions: (1) Does role ambiguity, in fact, exist between COs and XO's? And (2) if so, does this role ambiguity affect a ship's performance?

The author found that CO/XO role ambiguity does exist (at least as measured by the survey instrument) and that it does appear to affect some shipboard performance measures. Those measures for which a high degree of social-emotional oriented leadership would be involved showed the strongest correlation to level of CO/XO role ambiguity. Those areas for which a high degree of task-oriented leadership would be required appeared to be unrelated to the Level of CO/XO Role Ambiguity. Surprisingly, the data indicated that CO/XO Role Ambiguity is unrelated to a ship's retention rate.

A strong negative relationship was observed between the CO/XO Level of Role Ambiguity and the extent to which COs and XOs have discussed the distribution of leadership roles. This suggests that COs and XOs can reduce the Level of Role Ambiguity through effective two-way communication.

The author feels that this study has shown that CO/XO role clarification problems do exist and that they create real problems for both the command and members of the command. It has also indicated that CO/XO Role Ambiguity can be reduced and that lower levels of ambiguity appear to improve a ship's readiness and effectiveness.

While the observed correlations in this study were not extremely significant in several cases, the following quote by Stone (1978) should be kept in mind:

. . . measurement of variables with instruments having less than perfect reliability will lead to an observed relationship that is often considerably lower than the true relationship. [Stone, 1978, p. 50]

Since the instruments used in this study would undoubtedly "have less than perfect reliability," the true relationship between the level of CO/XO role ambiguity and a ship's performance is probably much stronger than this study indicates.

B. RECOMMENDATIONS

This study has potential implications for the Navy in several respects. First of all, data relating the effect of

role ambiguity on unit performance should be made available to perspective COs and XOs. This would help instill in them the realization that they can expect problems with role clarification and the benefit to be gained by actively discussing this issue. Second, data should be made available to Navy Human Resource Management (HRM)/Organization Development (OD) consultants. This study could be used by them to demonstrate to their clients the value of role clarification workshops. The consultants could also use the data to show COs and XOs that their level of role ambiguity can be reduced and, once reduced, can lead to increased effectiveness for the command.

It is felt that the ship's XOs would benefit personally if this information were provided to their COs by HRM/OD consultants. When CO/XO role ambiguity does occur, the XO would be most likely to suffer the greatest psychological stress. Being junior to the CO, he has fewer acceptable ways to deal with the stress which role conflicts and ambiguity create. Also CO/XO teams which had lower levels of ambiguity and stress were shown to have more effective units. The potential value of role clarification can, therefore, be seen not only in terms of improved unit performance, but also in terms of improved emotional health and personal well-being of command members.

Although the results of this study are promising, the sample is relatively small and focused on a very specific

category. Additional research is needed to identify the effects role conflicts (including role ambiguity) have at various levels of a command on unit performance. Likewise, research into the relationship of role conflict and unit effectiveness should be done for other types of military commands. Investigation of the type conducted in this study performed on aviation squadrons might prove very successful.

This study also suggests that personnel retention and equipment readiness are unrelated to CO/XO level of role ambiguity. Additional research into what these measures are most closely related with would also be of value to the Navy. In Chapter Four of this report it was noted that the Level of CO/XO Role Ambiguity was strongly related to those measures which require primarily social-oriented leadership behavior but was not related to those performance measures for which task-oriented leadership was required. Research explaining why these relationships are this way could be of real benefit to a CO/XO team.

During the course of this report the author has made a number of sweeping generalizations and several statements which were weakly supported at best. The author realizes that role conflict is only one aspect of the complex environment of a shipboard command or any formal organization. Because of this complexity there are no simple solutions to the problems of "exercising command as to produce an effective fighting unit."

It is hoped that some light has been shed on one of these problems. If so the time and effort which were involved in developing this report will have been well spent.

APPENDIX A

LEADERSHIP QUESTIONNAIRE

The attached questionnaire contains two parts. Part I asks for general and demographic information. Part II is a list of leadership or managerial functions often performed by ship's Commanding Officers and Executive Officers. You are requested to place the appropriate letters (using the code below) that best describe how these roles/functions are handled on board your ship.

"R" Responsible--the person who is responsible for initiating action and for ensuring the function is carried out.

"A" or "V" Approval required, or the right to veto--indicates that the person reserves the right to veto an action and the person responsible must gain approval on his proposed action.

"S" Support--indicates that while not responsible for the function, the person does provide assistance of some type to the person responsible for the function.

"I" Informed--indicates the person is to be kept informed on action to be taken/taken, but does not have (or does not want) approval or veto authority.

"NC" Not concerned with--indicates that the person is in no way concerned with this particular item at your command.

For purposes of this questionnaire, your responses should be in terms of how these functions are currently performed within your command. If a particular function/role does not apply, please answer the question as you would prefer or expect the function to be handled if it were to arise. If someone other than the CO or XO is responsible for initiating the action and for ensuring the function is carried out, please list that person by their title (ex: OPS, ENG, etc.) in the column marked "Responsibility Of."

The responses of each individual and each command to this questionnaire will be held in strict confidence. The

results are to be used in conjunction with my master's thesis and no reference to specific commands will be made.

Your time and assistance in this matter is greatly appreciated.

D. A. Rauch

PART I

DEMOGRAPHICS/GENERAL INFORMATION:

Your Rank: _____

Your Designator: _____

Number of months you have worked with your
current XO/CO: _____

This question is for COs only:

To what extent have you discussed with your XO the command leadership tasks you expect him to handle and which ones you desire to perform yourself? (Please check the appropriate response.)

- (1) To a very little extent _____
- (2) To a little extent _____
- (3) To some extent _____
- (4) To a great extent _____
- (5) To a very great extent _____

This question is for XOs only:

To what extent has your CO discussed with you the command leadership tasks he expects you to perform and those he desires to handle himself? (Please check the appropriate response.)

- (1) To a very little extent _____
- (2) To a little extent _____
- (3) To some extent _____
- (4) To a great extent _____
- (5) To a very great extent _____

R--Responsible
 A/V--Approval or Veto
 S--Support

I--Informed
 NC--Not Concerned With

PART II

LEADERSHIP TASK OR FUNCTION:

CO/XO's ROLE

CO XO RESPONSIBILITY OF:
 (Please List)

1. Establish standard daily inport and at sea routines for the ship.
2. Counsel department heads on their fitness reports.
3. Handle inquiries from the press or news media (TV, radio, newspaper, etc.)
4. Establish command grooming standards and ensure they are properly adhered to.
5. Ensure the ship's daily routine is adhered to as closely as possible.
6. Ensure dependents of crew members are kept informed of the ship's activities (via a family-gram or similar means).
7. Determine punishment to be awarded at Captain's Mast.
8. Counsel the departmental heads on career pattern or career opportunities.
9. Respond to Congressional letters of investigation.

R--Responsible
 A/V--Approval or Veto
 S--Support

I--Informed
 NC--Not Concerned With

PART II (Page 2)

LEADERSHIP TASK OR FUNCTION:

CO/XO's ROLE

CO XO RESPONSIBILITY OF:
 (Please List)

10. Ensure proper procedures are followed to safeguard classified material.
11. Conduct routine inspections of the ship's "living" spaces.
12. Reprimand or discipline department heads if necessary.
13. Conduct routine inspections of topside areas and non-living spaces to ensure proper cleanliness and maintenance.
14. Prepare and maintain bills and orders of the command as a whole.
15. Supervise and coordinate the training of the ship's officers.
16. Coordinate the work of personnel of the command.
17. Establish routine working hours and liberty policy for the command.
18. Control "shore leave" policy for the crew.
19. Establish holiday leave policy for the crew.

R--Responsible
 A/V--Approval or Veto
 S--Support

I--Informed
 NC--Not Concerned With

PART II (Page 3)

LEADERSHIP TASK OR FUNCTION:

CO/XO's ROLE

CO XO RESPONSIBILITY OF:
 (Please List)

20. Coordinate selection of liberty ports for the ship.
21. Establish post deployment leave policy.
22. Interface with personnel at the squadron or group level on matters dealing with the ship's schedule.
23. Supervise and coordinate the distribution of the command OPTAR fund.
24. Interface with NAVPERS to prevent or overcome personnel shortages in officer manning.
25. Interface with NAVPERS to prevent or overcome personnel shortages in enlisted manning.
26. Supervise and coordinate the ship's overhaul or RAV/TAV repair packages.
27. Maintain high officer morale.
28. Ensure the morale of the crew is kept as high as possible.
29. Ensure the ship's preparedness for all external inspections (such as PMS or INSURV inspections).

R--Responsible
A/V--Approval or Veto
S--Support

I--Informed
NC--Not Concerned With

PART II (Page 4)

LEADERSHIP TASK OR FUNCTION:

CO/XO'S ROLE

<u>CO</u>	<u>XO</u>	<u>RESPONSIBILITY OF:</u>
		(Please List)

30. Ensure the ship is prepared to meet operational commitments.

--	--	--

APPENDIX B

RETENTION DATA CONVERSION AND REGROUPING

In order to enable the author to include unit retention data in the unit composite rating in a meaningful way, the following procedure was followed. First, the data was grouped in five categories with ones (1) for the poorest retainers and fives (5) for the best retainers. The order of the groups was then reversed so that the scores would correspond appropriately with the other performance data (i.e., one would indicate top performance).

The following demonstrates how this was done:

RAW RETENTION PERCENTAGES/SCORES	RETENTION CATEGORY	RETENTION RATING USED FOR COMPOSITE CALCULATION
10-19	1	5
20-29	2	4
30-39	3	3
40-49	4	2
50-59	5	1

APPENDIX C
FREQUENCY CHARTS AND HISTOGRAMS

LEVEL OF ROLE AMBIGUITY

FREQUENCY CHART

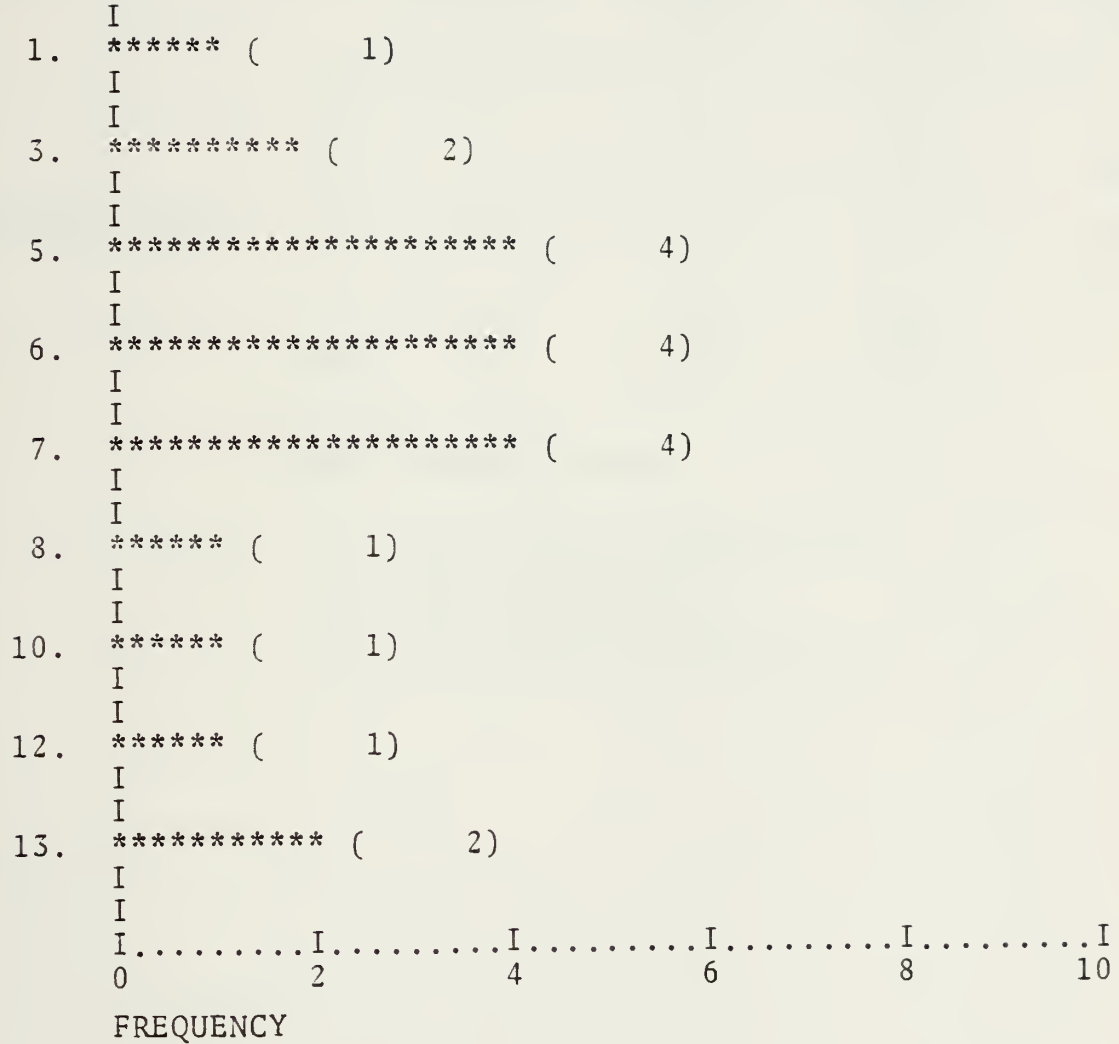
	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PCT)	ADJUSTED FREQUENCY (PCT)	CUMULATIVE FREQUENCY (PCT)
	1.	1	5.0	5.0	5.0
	3.	2	10.0	10.0	15.0
	5.	4	20.0	20.0	35.0
	6.	4	20.0	20.0	55.0
CATEGORY LABEL	7.	4	20.0	20.0	75.0
	8.	1	5.0	5.0	80.0
	10.	1	5.0	5.0	85.0
	12.	1	5.0	5.0	90.0
	13.	<u>2</u>	<u>10.0</u>	<u>10.0</u>	100.0
	TOTAL	20	100.0	100.0	

CODE INTERPRETATION: The scale on this variable is zero (0) indicating the presence of no role ambiguity to thirty (30) indicating absolute ambiguity. The observed sample range was from one (1) to thirteen (13).

LEVEL OF ROLE AMBIGUITY

HISTOGRAM

CODE



EXTENT OF DISCUSSION CO'S VIEW

FREQUENCY CHART

	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PCT)	ADJUSTED FREQUENCY (PCT)	CUMULATIVE FREQUENCY (PCT)
	2.	2	10.0	10.0	10.0
	3.	5	25.0	25.0	35.0
CATEGORY LABEL	4.	11	55.0	55.0	90.0
	5.	2	10.0	10.0	100.0
	TOTAL	<u>20</u>	<u>100.0</u>	<u>100.0</u>	

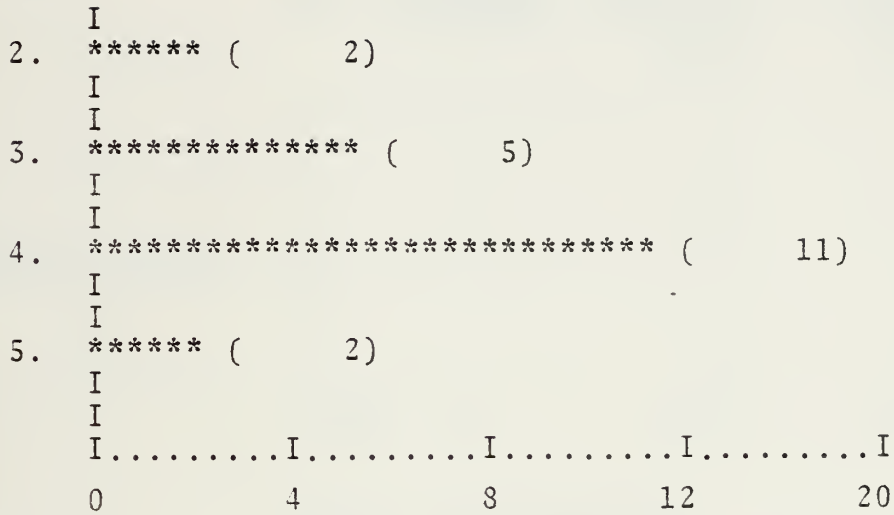
CODE INTERPRETATION:

- (1) To a very little extent
- (2) To a little extent
- (3) To some extent
- (4) To a great extent
- (5) To a very great extent

EXTENT OF DISCUSSION CO'S VIEW

HISTOGRAM

CODE



FREQUENCY

EXTENT OF DISCUSSION XO'S VIEW

FREQUENCY CHART

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PCT)	ADJUSTED FREQUENCY (PCT)	CUMULATIVE FREQUENCY (PCT)
	2.	2	10.0	10.0	10.0
	3.	8	40.0	40.0	50.0
	4.	7	35.0	35.0	85.0
	5.	3	15.0	15.0	100.0
		—	—	—	
	TOTAL	20	100.0	100.0	

CODE INTERPRETATION:

- (1) To a very little extent
- (2) To a little extent
- (3) To some extent
- (4) To a great extent
- (5) To a very great extent

HISTOGRAM

```

I
2. ***** (      2)
I
I
3. ***** (      8)
I
I
4. ***** (      7)
I
I
5. ***** (      3)
I
I
I.....I.....I.....I.....I.....I
0          2          4          6          8          10

```

FREQUENCY

RETENTION RATE

FREQUENCY CHART

	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PCT)	ADJUSTED FREQUENCY (PCT)	CUMULATIVE FREQUENCY (PCT)
CATEGORY LABEL	13.	1	5.0	5.0	5.0
	17.	1	5.0	5.0	10.0
	18.	1	5.0	5.0	15.0
	20.	1	5.0	5.0	20.0
	26.	1	5.0	5.0	25.0
	27.	1	5.0	5.0	30.0
	29.	2	10.0	10.0	40.0
	31.	3	15.0	15.0	55.0
	32.	2	10.0	10.0	65.0
	33.	1	5.0	5.0	70.0
	40.	1	5.0	5.0	75.0
	44.	2	10.0	10.0	85.0
	45.	1	5.0	5.0	90.0
	46.	1	5.0	5.0	95.0
	59.	1	5.0	5.0	100.0
		—	—	—	
	TOTAL	20	100.0	100.0	

CODE INTERPRETATION: The codes on this variable equate to the ship's overall retention percentage rates (i.e., 13 equals 13%).

RETENTION RATE

HISTOGRAM

CODE

13. I
***** (1)

I
17. I
***** (1)

I
18. I
***** (1)

I
20. I
***** (1)

I
26. I
***** (1)

I
27. I
***** (1)

I
29. I
***** (2)

I
31. I
***** (3)

I
32. I
***** (2)

I
33. I
***** (1)

I
40. I
***** (1)

I
44. I
***** (2)

I
45. I
***** (1)

I
46. I
***** (1)

I
59. I
***** (1)

I
I.....I.....I.....I.....I.....I
0 2 4 6 8 10

FREQUENCY

APPEARANCE AND CLEANLINESS RATING

FREQUENCY CHART

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PCT)	ADJUSTED FREQUENCY (PCT)	CUMULATIVE FREQUENCY (PCT)
	1.	5	25.0	25.0	25.0
	2.	7	35.0	35.0	60.0
	3.	4	20.0	20.0	80.0
	4.	2	10.0	10.0	90.0
	5.	2	10.0	10.0	100.0
		—	—	—	
	TOTAL	20	100.0	100.0	

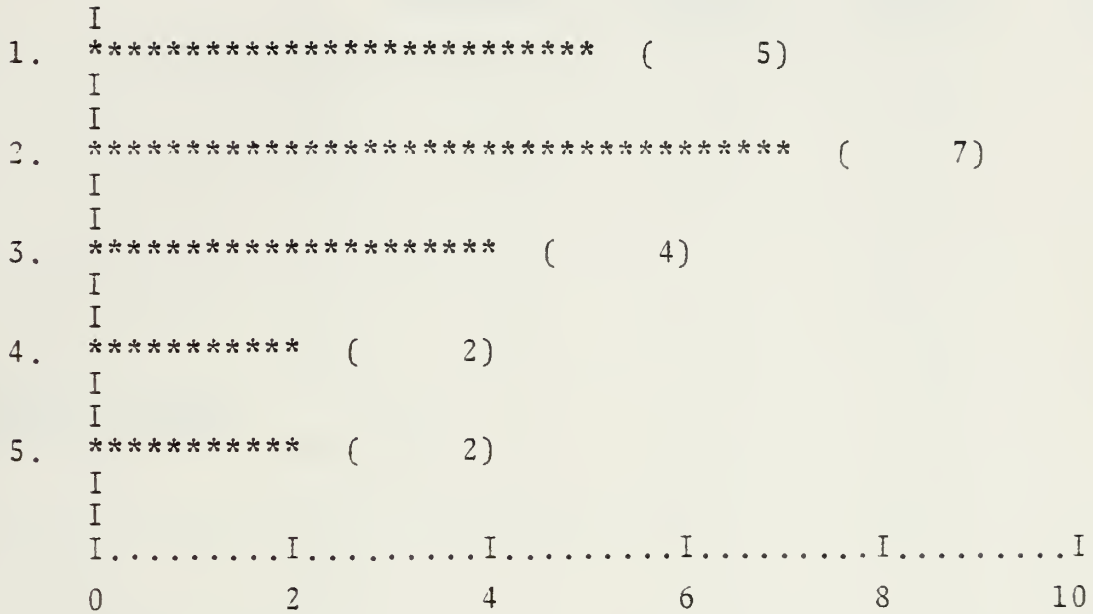
CODE INTERPRETATION:

- (1) Extremely good appearance
- (2) Above average appearance
- (3) Average appearance
- (4) Below average appearance
- (5) Extremely poor appearance

APPEARANCE AND CLEANLINESS RATING

HISTOGRAM

CODE



FREQUENCY

COMPOSITE OF ALL RATING VARIABLES

FREQUENCY CHART

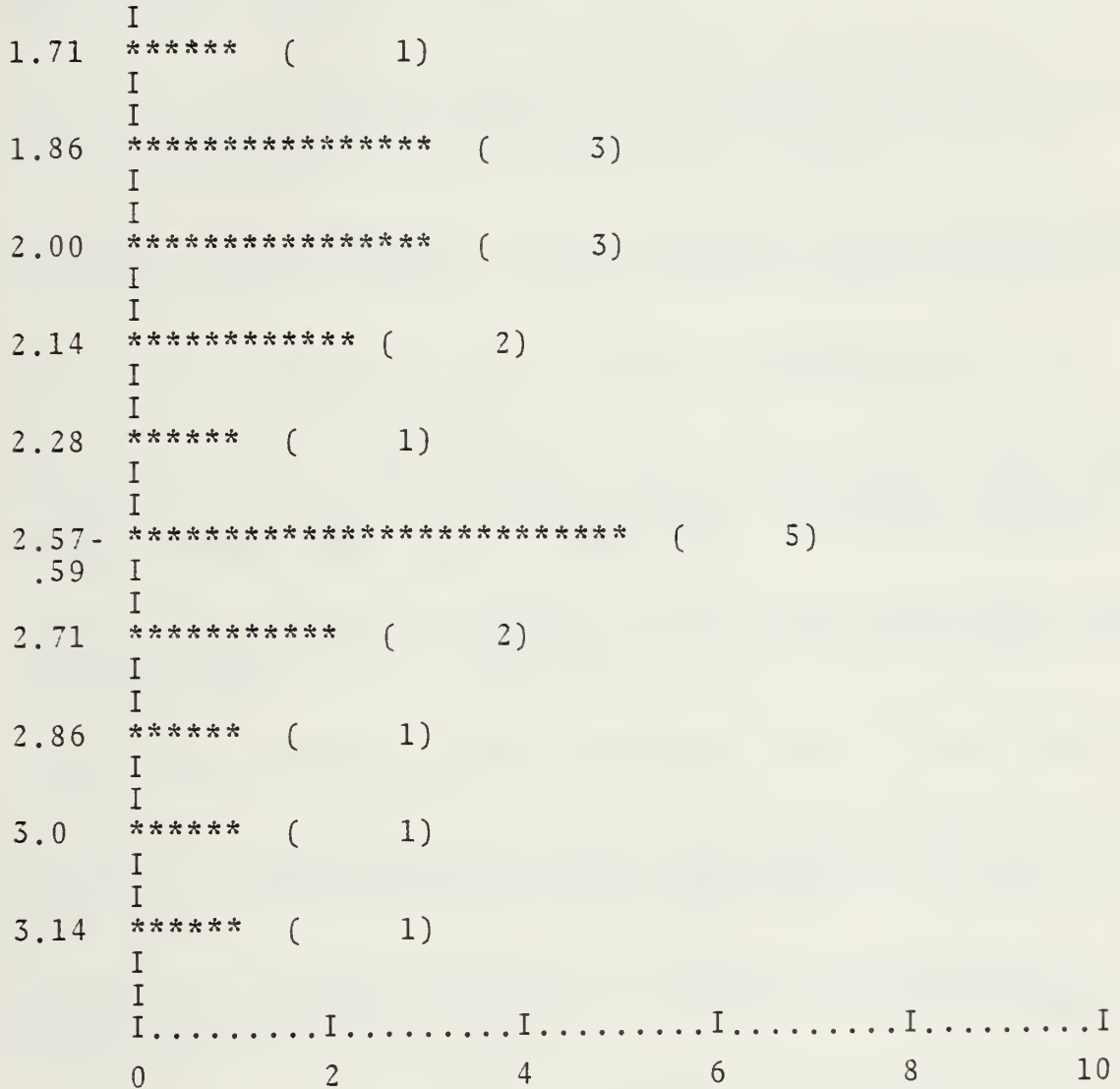
CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PCT)	ADJUSTED FREQUENCY (PCT)	CUMULATIVE FREQUENCY (PCT)
	1.71	1	5.0	5.0	5.0
	1.86	3	15.0	15.0	20.0
	2.00	3	15.0	15.0	35.0
	2.14	2	10.0	10.0	45.0
	2.28	1	5.0	5.0	50.0
	2.57-.59	5	25.0	25.0	75.0
	2.71	2	10.0	10.0	85.0
	2.86	1	5.0	5.0	90.0
	3.14	1	5.0	5.0	100.0
	TOTAL	20	100.0	100.0	

CODE INTERPRETATION: The possible range of codes on the composite rating was from 1.0 to 4.28. A lower numerical value for this code indicates a more effective/better ship.

COMPOSITE OF ALL RATING VARIABLES

HISTOGRAM

CODE



FREQUENCY

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unit performance.

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13 APR 88	33483

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